

SANADZE, G.A.

Objective method for evaluating the quality of black tea. Soob.^{AN}
Gruz.SSR 17 no.9:823-824 '56. (MLRA 10:2)

1. Akademiya nauk Gruzinskoy SSR, Institut botaniki, Tbilisi. Pred-
stavleno akademikom L.I.Dzhaparidze.
(Tea)

USSR/Plant Physiology - Respiration and Metabolism.

I

Abs Jour : Ref Zhur Biol., No 12, 1958, 53278

Author : Sanadze, G.A.

Inst : AS Georgian SSR

Title : The Nature of Gaseous Substances Emitted by Leaves of
Robina pseudoacacia

Orig Pub : Soobshch. AN GruzSSR, 1957, 19, No 1, 83-86

Abstract : Gases emitted from black Locust leaves were taken up by
calibrated silica gel. By means of chromatographic gas
analysis, i.e., by the combustion of hot gaseous mixtures
after their separate desorption, it was established that
the black locust released methane, ethane, propane, much
butane, and even greater amounts of heavier substances,
which was partially confirmed by the mass spectrographic
method. -- L.I. Krasovskiy

Card 1/1

- 4 -

SANADZE, G. A. Cand Biol Sci, -- (diss) ^{Pub. House of Acad Sci USSR} "Secretion of volatile organic substances by plants." Tbilisi, 1959. 21 pp (Acad Sci USSR. Inst of Physiology of Plants im K. A. Timiryazev), 200 copies. List of author's works at end of text (11 titles). (KL, 48-59, 114)

SANADZE, G.A.

Role of light in the formation of volatile organic products of
metabolism in plants. Soob. AN Gruz. SSR 22 no.4:449-454 Ap '59.
(MIRA 12:9)

1. AN Gruz SSR, Institut botaniki, Tbilisi. Predstavleno akade-
mikom L.I. Dzhaparidze.
(Light--Physiological effect) (Plants--Metabolism)

SANADZE, G.A.

Hydrogen given off by plant leaves. Soob.AN Gruz.SSR 22
no.5:563-568 My '59. (MIRA 12:11)

1. Akademiya nauk Gruzinskoy SSR, Institut botaniki, Tbilisi.
Predstavleno akademikom L.I.Dzhaparidze.
(Hydrogen) (Plants, Gases in)

SANADZE, G.A.

Absorption of molecular hydrogen by green leaves in light. Fiziol.
rast. 8 no.5:555-559 '61. (MIRA 14:10)

1. Botany Institute of Georgian S.S.R. Academy of Sciences,
Tbilisi.

(Photosynthesis)

(Hydrogen)

SANADZE, G.A.; DZHAPARIDZE, L.I., prof., akademik, red.; BOKUCHAVA,
T.P., red. izd-va; BOKERIA, E.B., tekhn. red.

[Emanation of volatile organic substances from plants]
Vydelenie rasteniami letuchikh organicheskikh veshchestv.
Tbilisi, Izd-vo Akad. nauk Gruzinskoi SSR, 1961. 91 p.

(MIRA 15:2)

1. AN Gruzinskoy SSR (for Dzhaparidze).
(Allelopathy)

SANADZE, G.A.; DOLIDZE, G.M.

Mass spectrometric identification of C_5H_8 (Isoprene)-type compounds in volatile secretions of plant leaves. Soob. AN Gruz. SSR 27 no.6:747-750 D '61. (MIRA 15:2)

1. Institut botaniki AN Gruzinskoy SSR i Institut fiziki AN Gruzinskoy SSR, Tbilisi. Predstavleno akademikom L.I. Dzhaparidze.

(Isoprene)
(Exudation(Botany))
(Mass spectrometry)

SANADZE, G.A.

Use of a titrimetric gas analyzer for the determination of the rate of photosynthesis and respiration. Bot. zhur. 48 no.12:1796-1799 D '63. (MIRA 17:4)

1. Institut botaniki AN Gruzinskoy SSR, Tbilisi.

SANADZE, G.A.

Conditions of the excretion of diene C_5H_8 (isoprene) by
leaves. Fiziol. rast. 11 no.1:49-52 Ja-F '64.

(MIRA 17:2)

1. Institut botaniki AN Gruzinskoy SSR, Tbilisi.

SANADZE, I.A.; SARKISOVA, M.N.

Effect of clayey admixtures on the structural properties of ~~gypsum~~-
containing soils. Soob. AN Gruz. SSR 19 no.3:309-312 S '57.
(MIRA 11:5)

1. Akademiya nauk Gruzinskoy SSR, Institut stroitel'nogo dela,
Tbilisi. Predstavleno akademikom K.S. Zavriyevym.
(Clay) (Gypsum)

~~SECRET~~

1. George Washington
 2. John Adams
 3. Thomas Jefferson
 4. James Madison
 5. James Monroe
 6. John Quincy Adams
 7. Andrew Jackson
 8. Martin Van Buren
 9. William Henry Harrison
 10. John Tyler
 11. James K. Polk
 12. Franklin Pierce
 13. Abraham Lincoln
 14. Andrew Johnson
 15. Ulysses S. Grant
 16. Rutherford B. Hayes
 17. James A. Garfield
 18. Chester A. Arthur
 19. William McKinley
 20. Theodore Roosevelt
 21. William Howard Taft
 22. Woodrow Wilson
 23. Dwight D. Eisenhower
 24. John F. Kennedy
 25. Lyndon B. Johnson
 26. Richard M. Nixon
 27. Jimmy Carter
 28. Ronald Reagan
 29. George H. W. Bush
 30. Bill Clinton
 31. George W. Bush
 32. Barack Obama
 33. Mit Romney
 34. Joe Biden
 35. Donald Trump

1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 26

100

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SANADZE, I.A.

Complete utilization of Akhaltsikhe coal. Soob. AN Gruz. SSR 20
no. 2:193-197 F '58. (MIRA 11:7)

1. AN GruzSSR, Institut stroitel'nogo dela, Tbilisi. Predstavleno
akademikom K.S.Zavriyevym.

(Ash(Technology))

(Rustavi--Portland cement)

3(5) SANAD 28, I. A. PHASE I BOOK EXPLOITATION

SOV/2505

p 4
Akademiya nauk Gruzinskoy SSR. Sovet po izucheniyu proizvoditel'nykh
sil

Prirodnyye resursy Gruzinskoy SSR. t. 2: Nemetallicheskiye poleznyye
iskopayemye (Natural Resources of the Georgian Soviet Socialist
Republic. v. 2: Nonmetallic Mineral Deposits) Moscow, Izd-vo AN
SSSR, 1959. 379 p. Errata slip inserted. 5,500 copies printed.

Ed.: F.N. Tavadze, Corresponding Member, Gruzinskoy SSR Academy of
Sciences; Ed. of Publishing House: K.M. Feodot'yev; Tech. Ed.:
A.P. Guseva; Editorial Board: R.I. Agladze, Sh. R. Archvadze, N.D.
Vachnadze, G.G. Gvelasiani, B.I. Gudzhedzhiani, A.I. Dzhanelidze,
G.S. Dzotsenidze, S.V. Durmishidze, N.N. Ketskaveli, I.S. Mikeladze,
M.M. Rubinshteyn, A.A. Tvalchrelidze (Deceased), G.V. Tsitsishvili,
and P.G. Shengeliya.

PURPOSE: This book is intended for economic geologists and mineralo-
gists.

COVERAGE: This collection of articles describes the nonmetallic min-
eral deposits of the Gruzinskaya SSR and the extent to which they

Card 1/13

Natural Resources of the Georgian Soviet (Cont.) SOV/2505

have been exploited. Individual articles discuss the importance of barite, diatomite, talc, andesite, and other minerals to the chemical industry; of barite, gumbrine, and bentonitic clays to the petroleum industry; and of marble, slate, and limestones to the construction industry. A map depicting the major nonmetallic mineral deposits is included with the work. No personalities are mentioned. References accompany each article.

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375

AVAILABLE: Library of Congress

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SANADZE, I.A., kand.tekhn.nauk

Quality and sulfate resistance of slag portland cement. Nauch.sob.
NIISementa no.7:30-35 '60. (MIRA 14:5)

1. Institut stroitel'nogo dela AN Gruzhiinskoy SSR.
(Slag cement)

SANADZE, I.A.

Determining the mineralogical composition of Red soil. Trudy Inst.
stroim. i seism. AN Gruz. SSR 9:115-121 '63.

(MIRA 17:12)

SANADZE, I.A.

Investigating sulfate resistance of portland cement. Soob. AN Gruz.
SSR 32 no.2:397-403 '63. (MIRA 18:1)

1. Institut stroitel'nov mekhaniki i seymosteykosti, AN Gruzinskoy SSR
Tbilisi.

SANADZE, I.A.

Studies in the sulfate resistance of portland cement. Scob. AN
Gruz. SSR 37 no.3:627-634 Mr '65. (MIRA18:5)

1. Institut stroitel'noy mekhaniki i seysmostoykosti AN GruzSSR.
Submitted June 23, 1964.

SANADZE, I.A.

Investigation of the sulfate resistance of concrete made
with mixed cements under full-scale laboratory conditions.
Trudy Inst. stroi. mekh. i seism. AN Gruz. 10:155-165
'64. (MIRA 18:11)

SANADZE, K. S.

New species of the genus Rubus l, in Georgia [in Georgian with summary in Russian]. Trudy Tbil. GU no.62:265-275 '57.

(MIRA 11:7)

1. Tbilisskiy gosudarstvennyy universitet imeni Stalina, kafedra botaniki.

(Georgia--Rubus)

SANADZE, L.G.

SANADZE, L.G.

Using the method of Bernshtein's spectral function in studying
the vibration of trusses. Trudy GPI no.6:32-37 '56. (MIRA 11:2)

1.Kafedra stroitel'noy mekhaniki Gruzinskogo politekhnicheskogo
instituta im. S.M. Kirova, Tbilisi.
(Trusses--Vibration)

(disa)

SANADZE, L. G. Cand Med Sci --¹Effect of ovarian steroids upon the vagina, uterus, and ovaries of white mice. (Experimental morphological study)."

Tbilisi, 1958. 16 pp (Tbilisi State Med Inst), 200 copies (KL, 36-58, 116)

-83-

ALIYEV, Sh.M.; SANADZE, N.A.

Technological processes in the production of optically active
ED6-M material. Za tekhn. prog. 3 no.9:24-27 S '63. (MIRA 16:10)

1. Mashinostroitel'nyy zavod im. leyts.Shmidta.

L 27244-65 EWT(d)/EPF(n)-2/EPF(1) Po-Li/Pq-Li/Pg-Li/Pu-Li/Pk-Li/Pl-Li/Pae-2 IJP(c)
WW/OS/BC

ACCESSION NR: AT5003901 S/0000/64/000/000/0015/0021

AUTHOR: Sanadze, R. A.

TITLE: Concerning the use of computers for automatic synthesis of control systems

SOURCE: Vsesoyuznaya konferentsiya-seminar po teorii i metodam matematicheskogo modelirovaniya. 3d, 1962. Vychislitel'naya tekhnika v upravlenii (Computer technology in control engineering); sbornik trudov konferentsii. Moscow, Izd-vo Nauka, 1964, 15-21

TOPIC TAGS: ⁹optimal control, computer control, automatic control theory, optimization control system, linear control system

ABSTRACT: Two specific methods are considered and illustrated by means of concrete examples. The first, the control function, involves limitation of the phase coordinates of the system, and the concrete example is that of the synthesis of a control for an object

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L 27244-65

ACCESSION NR: AT5003901

whose dynamics is described by a system of fourth-order linear differential equations. The synthesis procedure is divided into two stages, with the error of the control unit first evaluated as a function of the time and its variation then expressed in terms of the phase coordinates. Such a synthesis algorithm was programmed for a universal digital computer and the results checked against an analog computer (MPT-9). A switching-signal generator model was constructed on the basis of the solution and was shown to decrease the overshoot by 50--60% with a relatively small change (10--15%) in the transient time. The second automatic synthesis procedure involved control by optimization of the system parameters and was developed for the concrete example of a five-channel automatic optimizer which realized the algorithm of automatic search for the minimum of a function by the steepest descent method. Automatic synthesis of a third-order control system was carried out with the aid of an automatic optimizer in an analog system. The results were not as conclusive as in the first procedure, and were sensitive to the choice of the initial

Card

2/3

L 27244-65

ACCESSION NR: AT5003901

values of the varied parameters. In the case of certain quality functions with smooth extrema, the optimizer indicated the region of the extremum but not its exact location. This is attributed both to the limited accuracy of the analog installation and of the automatic optimizer itself. Orig. art. has: 4 figures, 14 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 17Aug64

ENCL: 00

SUB CODE: DP, IE

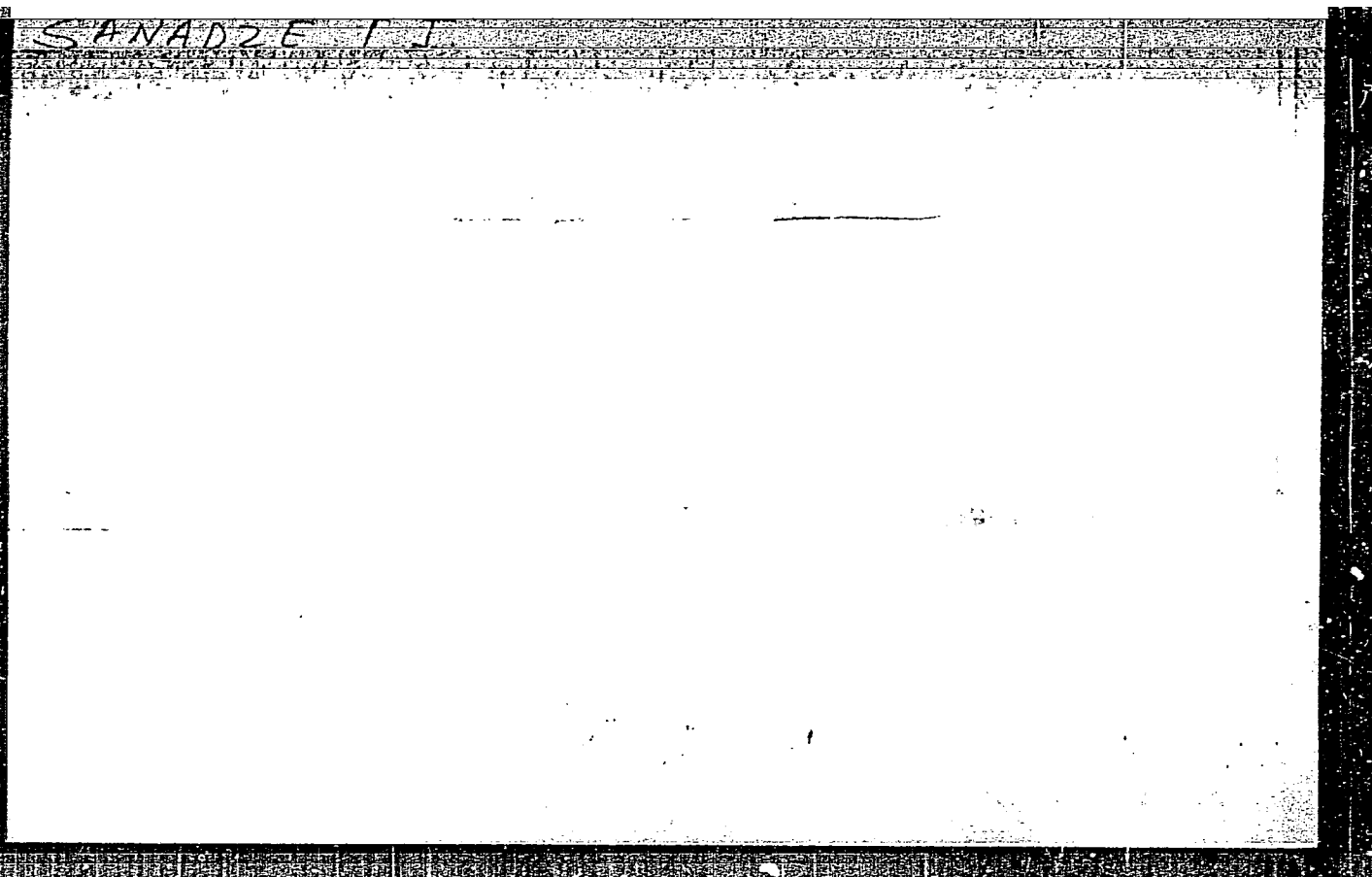
NR REF SOV: 005

OTHER: 000

Card 3/3

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R001447020019-3



APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R001447020019-3"

SANADZE, T.I.

56-4-32/54

AUTHOR: Sanadze, T.I.

TITLE: Paramagnetic Resonance in Neodymium Nitrate.
(Paramagnitnyy rezonans v nitrate neodima) (Letter to the Editor)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 4, pp. 1042 - 1043 (USSR)

ABSTRACT: The spectrum of $\text{Nd}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ was investigated by a radio frequency spectrometer at temperatures of liquid hydrogen and 3,2 cm wave length. The following data were obtained:
1.) The spectrum consists of 1 intensive and 16 hyperfine structure lines. 2.) The values of the g-factor are:

$$g_x = 3,88 \pm 0,01 \quad g_y = 1,72 \pm 0,01 \quad g_z = 0,74 \pm 0,01$$

3.) The constants for the splitting were determined to $(10^{-4} \text{ cm}^{-1})$:

$$\text{Nd}^{143}: A_x = 432 \pm 2; A_y = 193 \pm 2; A_z = 82 \pm 10$$

$$\text{Nd}^{145}: A_x = 270 \pm 2; A_y = 119 \pm 2; A_z = 51 \pm 10$$

Card 1/2

56-4-32/54

Paramagnetic Resonance in Neodymium Nitrate

4.) The ratios $A_x^{143}/A_x^{145} = 1,60 \pm 0,02$ and

$A_y^{143}/A_y^{145} = 1,62 \pm 0,04$ agree very well with

the experimentally otherwise measured ratios of the magnetic moments of neodymium nuclei. There are 1 figure and 1 Slavic reference.

ASSOCIATION: Tiflis State University
(Tbilisskiy gosudarstvennyy universitet)

SUBMITTED: June 2, 1957

AVAILABLE: Library of Congress

Card 2/2

SAMADZE, T.I., Cand Phys-Math Sci —(diss) "Paramagnetic resonance of neodymium and terbium in nitrate." Tbilisi, 1958. 14 pp (Tbilisi State Univ im I.V.Stalin), 100 copies Bibliography: pp 13-14 (13 titles)
(KL. 24-58, 115)

L 34475-65 EWT(1)/EEC(t)/EEC(b)-2 Pi-4 IJP(c)

ACCESSION NR: AP5005315

S/0181/65/007/002/0640/0642

AUTHOR: Berulava, B. G.; Sanadze, T. I.; Khakhanashvili, O. G.

TITLE: Relaxation processes in paramagnetic resonance of U^{3+} and Tb^{3+} in CaF_2

SOURCE: Fizika tverdogo tela, v. 7, no. 2, 1965, 640-642

TOPIC TAGS: spin lattice relaxation, relaxation time, electron paramagnetic resonance, uranium, terbium, fluorite

ABSTRACT: The authors investigated the spin lattice relaxation of the ions U^{3+} and Tb^{3+} in the temperature range 1.5—15K. The measurements were made by the method of pulsed saturation at 9,370 Mcs. The impurity concentrations were 0.05% and 0.10% in the case of U^{3+} and 0.005% and 0.01% in the case of the Tb^{3+} . The crystals in which the impurity ions were only in tetragonal surroundings were used for the investigation. The relaxation times ranged in the interval 10^{-4} — 10 sec. They were measured with the magnetic field parallel and perpendicular to the symmetry z-axis for the U^{3+} ions. For the Tb^{3+} ions, the relaxation processes were investigated only in parallel orientation. The temperature dependences of the relaxation times are given by formulas of the type

Cord 1/2

L 34475-65

ACCESSION NR: AP5005315

$1/\tau = AT + B \exp(\Delta/kT)$, where the constants A, B, and Δ vary with the type of ion, the concentration, and the other temperatures. The concentration dependence of the relaxation time can be represented by the expression $1/\tau_1 = 70 x^n$, where x is the impurity concentration in molar percent and $n = 1.5 \pm 0.1$. This agrees with the relaxation mechanism corresponding to phonon scattering by the lattice defects. "The authors thank Professor P. P. Feofilov and A. A. Mak for supplying the samples." Orig. art. has: 1 figure and 4 formulas. [02]

ASSOCIATION: Tbilisskiy gosudarstvennyy universitet (Tiflis State University)

SUBMITTED: 05Aug64

ENCL: 00

SUB CODE: SS, NP

REF SOV: 002

OTHER: 003

ATD PRESS: 3213

Card 2/2

L 34945-65 EWT(1)/EWT(m)/EWP(e)/EPF(c)/EPR/EEC(t)/EWP(t)/EWP(b) Pr-4/Ps-4/Pe-
IJP(c) WH/JD/JW

ACCESSION NR: AP5006489

10056/65/04R/002/0437/0441

AUTHOR: Berulava, B. G.; Sanadze, T. I.; Khakhanashvili, D. G.

TITLE: Fluorine hyperfine structure of the EPR spectra of U^{3+} and Tb^{3+} ions in CaF_2

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965,
437-441

TOPIC TAGS: fluorine ion, hyperfine structure, EPR spectrum, uranium ion, terbium
ion, fluorite, paramagnetic crystal, paramagnetic ion, CaF_2 , SrF_2 , BaF_2

ABSTRACT: The complicated hyperfine structure of U^{3+} ions in CaF_2 , SrF_2 , and BaF_2 ,
and also of Tb^{3+} in CaF_2 , previously observed by the authors and by others, is
analyzed. It is shown first that interaction with the nearest neighboring F^- ions,
the number of which is nine, cannot account for the observed number of hyperfine
structure components (20 or 12), since no grouping of the hyperfine interactions for
these ions, with allowance for the tetragonal symmetry of the surrounding, can lead
to such a structure. Distortion of the structure around the impurity center and the
appearance of a weak rhombic component of the field inside the crystal is likewise
shown to be incapable of explaining the structure. It is therefore concluded that
the number of F^- ions interacting with the U^{3+} ions includes not only the nine nearest
neighbors but those from the second coordination sphere. It is further shown that

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L 34945-65

ACCESSION NR: AP5006489

4

the paramagnetic ion interacts with 13 F^- ions, covering partially and asymmetrically the second coordination sphere, namely four ions around the symmetry axis on the side of the additional ion. These 13 ions break up into two subgroups with identical hyperfine structure constants, 8 of which form a cube around the U^{3+} and 5 located on the side of the additional F^- ion. In this case the number of hyperfine structure components is 27 and the intensities are in agreement with the observations. For the other orientation the number is 14. This agrees with the observed 10 and 12 hyperfine components inserted in an isotropic U^{3+} in CaF_2 . In the case of Tb^{3+} , the observed number of hyperfine structure lines is 10 and the binomial distribution of the intensity show that the paramagnetic ion interacts with 9 ions of the first coordination sphere, and the interaction has the same asymmetrical character as for U^{3+} . The distances between the components are given for both ions. The presence of an appreciable chemical bond between the f electrons and the surrounding ions in the case of Tb^{3+} is apparently attributable to the fact that the f shell of Tb^{3+} has 8 electrons, with 7 electrons filling half the shell. "The authors thank Professor P. P. Fecfilov for supplying the samples, and Professor G. R. Khutsishvili and L. L. Byishvili for valuable discussions." Orig. art. has: 4 figures and 1 table.

[02]

ASSOCIATION: Tbilisskiy gosudarstvennyy universitet (Tbilisi State University)

Card 2/3

L 34945-65

ACCESSION NR: AP5006489

SUBMITTED: 02Aug64

ENCL: 00

SUB CODE: SS, NP

NO REF SOV: 001

OTHER: 005

ATD PRESS: 3211

Card 3/3

L 08361-67 EWT(m)/EWP(t)/ETI IUP(c) UD

ACC NR: AR6028136

SOURCE CODE: UR/0058/66/000/005/D081/D081

AUTHOR: Berulava, B. G.; Sanadze, T. I.

30

TITLE: Paramagnetic resonance of erbium nitrate

SOURCE: Ref. zh. Fizika, Abs. 5D637

REF. SOURCE: Tr. Tbilissk. un-ta, v. 103, 1965, 183-185

TOPIC TAGS: epr spectrum, erbium compound, nitrate, hyperfine structure

ABSTRACT: The authors investigated the EPR spectrum of erbium nitrate $\text{Er}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ diamagnetically diluted with lanthanum (1:100). The measurements were made at 4.2°K at a frequency 9370 Mc. The following values of the g-factors were obtained: $g_x = 10.13 \pm 0.02$, $g_y = 6.17 \pm 0.02$, and $g_z = 1.95 \pm 0.02$. The hyperfine splitting was investigated accurate to third-order perturbation theory. M. Kask. [Translation of abstract]

SUB CODE: 20

Card 1/1 nat

SANADZE, V. V.

"Crystalline Structure: Potassium - or Ammonium - Mercury Rhodanides."
Sub 28 Jun 50, Inst. of Crystallography, Acad Sci USSR. Thesis for degree
of Cand. Physico-Mathematical Sci.

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering
in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec. 1950.

CA

Special case of direct x-ray structure analysis. V. V. Sanadze and G. S. Zhdanov. *Doklady Akad. Nauk S.S.S.R.* 73, 111-12 (1950). —A method is discussed which was particularly useful in the detn. of the structure of the double thiocyanate of K and Hg, with 22 parameters and RX_2 complex coordinations. The method is based on the application of "pseudo-symmetry centers" which are occupied by the heavy cations. Every pseudo-center has the property that the max. of the vectorial model are in sym. positions to these centers, and exactly correspond to max. of the at. configuration. A suitable selection of a min. no. of such pseudo-centers makes a gradually improved approximation to the real at. coordinates possible. W. E.

SANADZE, V. V.

USSR/Chemistry - Mercury Compounds

Apr 52

"Crystal Structure of Thiocyanates. IV. X-Ray
Investigation of the Crystal Structure of $\text{Hg}(\text{SCN})_2$
ASCN $\sqrt{A} = K; \text{NH}_4$," G. S. Zhdanov, V. V. Sanadze,
Phys Chem Inst imeni L. Ya. Karpov

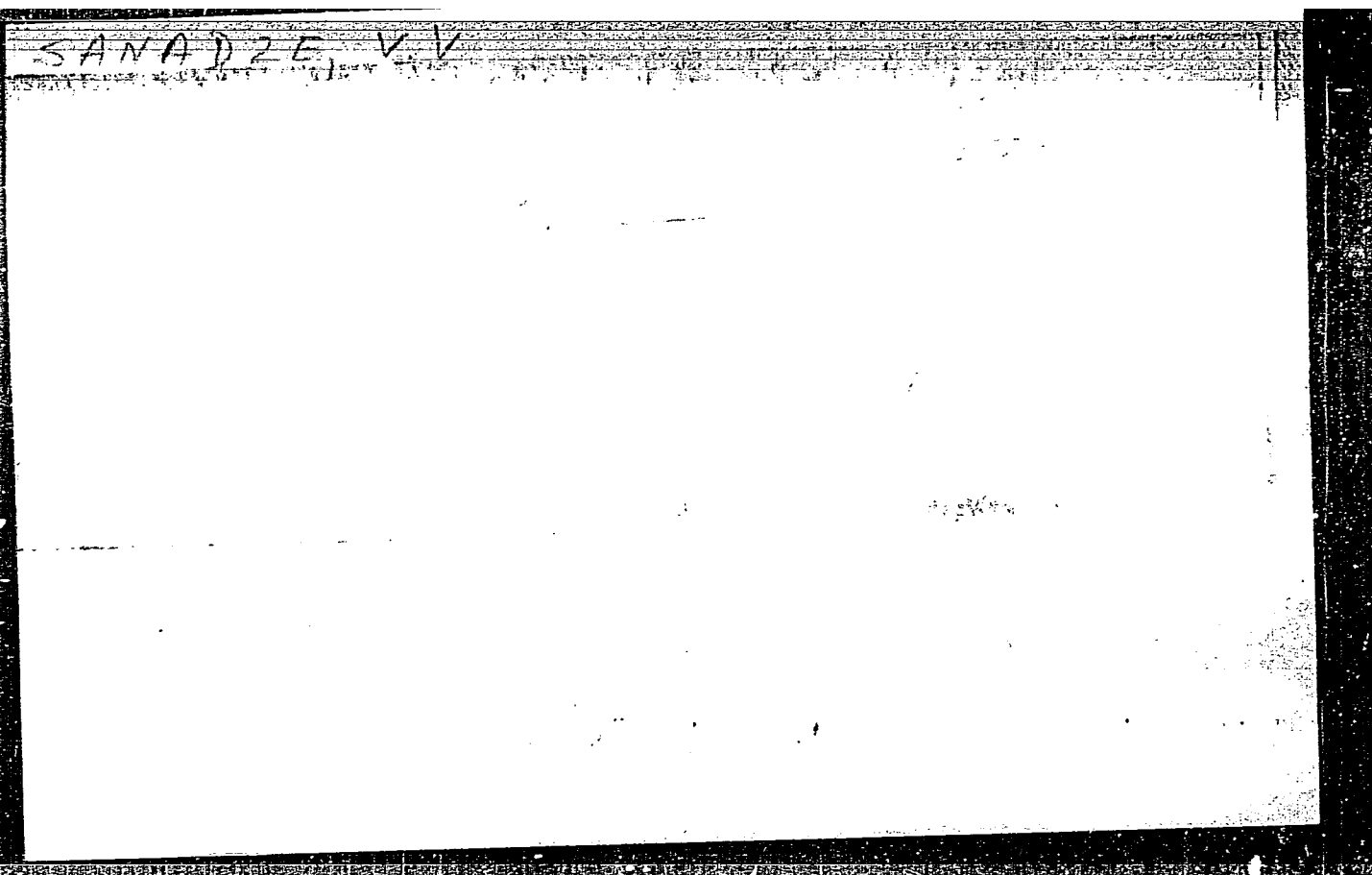
"Zhur Fiz Khim" Vol XXVI, No 4, pp 469-478

Detd in a detailed investigation the crystal-chem
and crystal-phys data for this class of compds.
Found that potassium-mercury thiocyanates and
ammonium-mercury thiocyanates must be regarded as
double salts on the basis of X-ray data.

217T21

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R001447020019-3



APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R001447020019-3"

SANADZE, V.V.

Category : USSR/Solid State Physics - Diffusion. Sintering

E-6

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3885

Author : Sanadze, V.V., Tsivtsivadze, T.A.

Title : Effect of Small Concentrations of Alloying Elements on the Self Diffusion of Iron. II. Effect of Concentration of Vanadium.

Orig Pub : Tr. Gruz. politekhn. in-ta, 1956, No 1, (42), 141-144

Abstract : The temperature dependence of the coefficient of self-diffusion was studied in Fe-V alloys with 0.09, 0.242, and 0.4% vanadium by weight at 1050, 1100, and 1150°; the energy of activation of γ -iron was calculated. Alloying of iron with vanadium, even in insignificant amounts, reduces the energy of activation of self-diffusion and consequently, weakens the bonds in the crystalline lattice of the alloys. For part I see Referat. Zh. Fizika, 1956, 13479.

Card : 1/1

SOV/137-58-8-17589

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 197 (USSR)

AUTHORS: Sanadze, V. V., Tatrishvilli, K. T.

TITLE: Effect of Low Concentrations of Alloying Elements on the Self-diffusion of Iron. III. Effect of the Concentration of Manganese (Vliyaniye malykh kontsentratsiy legiruyushchikh elementov na samodiffuziyu zheleza. III. Vliyaniye kontsentratsii margantsa)

PERIODICAL: Tr. Gruz. politekhn. in-t, 1957, Nr 4, (52), pp 165-170

ABSTRACT: The effect of the concentration of Mn on self-diffusion in γ Fe was studied with the aid of the radioactive isotope Fe^{59} by the method of grinding off of layers followed by the measurement of residual integral activity and by the absorption method modified for the case of a complex emitter. The specimens contained 0.38, 0.91, 1.97, 4.1, and 6.03% Mn. The annealing of 20 - 70 hours duration was conducted within a $50^{\circ}C$ interval in the $900 - 1300^{\circ}$ range. At low temperatures (to 1000°) the inter-crystallite diffusion (ID) which has very little relation to the concentration of Mn is predominant. In the $1000 - 1100^{\circ}$ range the role of volume diffusion (VD) increases and the relationship with concentration becomes evident. Above 1100° the dominant

Card 1/2

SOV/137-58-8-17589

Effect of Low Concentrations of Alloying Elements (cont.)

type of diffusion apparently is VD which has a definite relationship with the concentration consisting of the emergence of a maximum of the coefficient of self-diffusion at 4% Mn. The values for activation energies Q and the pre-exponential factors for ID and VD were calculated; Q for both ID and VD attain a maximum value at 4% Mn (37.3 and 81.18 kcal /g atom respectively). For the preceding report see RZhMet, 1957, Nr 9, abstract 17757.

D. T.

1. Iron--Diffusion
2. Manganese--Metallurgical effects
3. Iron isotopes (Radioactive)--Performance
4. Diffusion--Temperature effects

Card 2/2

A Pulsed X-ray Diffractometer

SOV/70-4-3-13/32

of a sprocket over which a band of cinematograph film passes is thus made proportional to the number of pulses received. A spiral slit is part of the train of gears rotating as the crystal-holder and counter scan over θ and 2θ , respectively. A beam of light is projected through this spiral and through another slit, thus moving a spot from side to side of the film as the counter rotates. The spiral makes 12 revolutions per degree θ . The film advances 0.15 mm/impulse. Examples are shown of traces, made with monochromatic radiation, from a single crystal of NaCl and from polycrystalline Al. With this method of recording the positions of the maxima can be found with very great accuracy. The integrated intensity is also very easily obtained. A graph is used for determining the equivalent peak height which is obtained from the maximum gradient of the trace on the film. This completely new approach has a number of important advantages over methods used hitherto. Various types of counters can be used. Acknowledgments are made to V.A. Sharybkin and to M.V. Dzhibuti.

Card2/3

A Pulsed X-ray Diffractometer

SOV/70-4-3-13/32

There are 8 figures and 8 references, 5 of which are Soviet and 3 English.

ASSOCIATION: Gruzinskiy politekhnicheskii institut imeni
S.M. Kirova (Georgian Polytechnical Institute imeni
S.M. Kirov)

SUBMITTED: February 19, 1959

Card 3/3

SOV/70-4-4-9/34

AUTHORS: Sanadze, V.V. and Gulyayev, G.V.

TITLE: The Decay of Solid Solutions in the System Nickel-gold. I.

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 4, pp 526 - 533
+ 1 plate (USSR)

ABSTRACT: The nickel-gold alloys, containing 0.7, 1.12 and 1.72 at.% Au, have been studied by the method of successive annealing. It was shown, by X-ray diffraction, micro-hardness and electrical conductivity measurements, that in these alloys a two-phase decay of solid solutions rich in Au takes place at comparatively low temperatures, but that above 500-600 °C, two-phase decay proceeds in solutions based on Ni. Alloys of the three compositions were made by fusing Ni and Au in a corundum crucible in a vacuum furnace. .5 mm dia cylinders were turned from the specimens and etched with 50% HNO₃, 50% CH₃COOH for X-ray examination. Parameters were found from the 420 CuK_α doublet at 78°30'. Specimens, both rods and plates, were annealed at various temperatures between 250 and 925 °C. Those quenched from temperatures higher than 925 °C had the single-phase β-solid solution structure.

Card1/4

SOV/70-4-4-9/34

The Decay of Solid Solutions in the System Nickel-gold. I.

The equilibrium diagram of the Ni-Au system shows that the limit of the solubility of Au in Ni below 300 °C has not been exactly established, although extrapolation gave some basis for the assumption that at room temperature Au was soluble in Ni to the extent of at least 1-1.5 at.%. This was why the particular concentrations used here were chosen. For the two lower concentrations, metallographic examination failed to show two phases and only the increased background or weak lines in the diffraction pictures showed that at room temperature the alloys were not single-phase. For studying the transformation proceeding in the Au-rich α -phase, the measurements of X-ray background and electrical resistance were particularly valuable as these characteristics were especially sensitive to changes in the finely-dispersed components of alloys. As a result of the increasing solubility of Au in the Ni lattice with increasing temperature, non-uniformities begin to be produced in α -solid solutions which decay into α and α' phases poorer and richer in Au. There are two

Card2/4

SOV/70-4-4-9/34

The Decay of Solid Solutions in the System Nickel-gold. I.

solid solutions co-existing in one and the same base but of different concentrations and this indicates the occurrence of two-phase decay of the solid solution. The impoverishment of the α -solid solutions with respect to Au leads to the formation of ordered structures, first Au_3Ni , then AuNi and, finally, Ni_3Au . At higher temperatures (above

500-600 °C) the β -solid solutions begin to decay. These modes are very complicated and are summarised in a diagram. Exfoliation of the β -solid solutions proceeds with the separation of gold-rich phases (β , β^* and β'). This process in turn leads to the formation of ordered structures of the Ni_3Au type based on the β -solid solutions. It

is clear that all the phases mentioned are not stable and only express separate stages of the process, its kinetics. The process consists of the meeting of two diffusion currents leading at high temperatures to the formation of a homogeneous solid solution.

Card 3/4

SOV/70-4-4-9/34
The Decay of Solid Solutions in the System Nickel-gold. I.

There are 9 figures, 1 table and 6 references, of which
4 are German, 1 English and 1 international.

ASSOCIATION: Gruzinskiy politekhnicheskiy institut im. S.M. Kirova
(Georgian Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: April 8, 1959

Card4/4

SOV/70-4-5-11/36

AUTHORS: Sanadze, V. V., Gulyayev, G. V.

TITLE: Decomposition of Solid Solutions in Nickel-Gold Alloys

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 5, pp 678-694 (USSR)

ABSTRACT: Continuing the subject of their previous studies (Abstract 74873, Kristallografiya, 4,4, 1959), The authors examined the course of phase transitions in the nickel-gold alloys with higher Au contents than in previous experiments. The contents of 10.07% Au, 14.4% Au, 19.5% Au (3.2, 4.8, 6.7 atomic %, respectively) secured two-phase systems at indoor temperatures. The phase transitions and the compounds resulting from them at the annealing temperatures varying from 250 to 925° C are shown in Fig. 10. It can be seen that the redistribution of atoms in the α -phase, rich in gold, first leads to the segregation of Au_3Ni with

Card 1/5

Decomposition of Solid Solutions in Nickel-Gold Alloys

75989

SOV/70-4-5-11/36

an ordered crystal structure and α' -phase with a lower Au content. The still further temperature increase leads to the solution of more gold in the β -phase on the expense of Au_3Ni , α' -phase and AuNi which consequently disappear completely at certain temperatures. The increased Au content in the β -phase gives rise to the segregation of β' -phase, of which, in turn, segregates the β'' -phase, taking the excessive Au. Finally, above 900°C , all the transitional phases dissolve one in another forming a single β -phase of uniform composition. The unit cell dimensions of each phase were determined according to the X-ray photographs taken at various temperatures. The identity periods, a , of their cubic cells are given in Fig. 10 in parentheses. The alloys of the three different compositions, annealed at various temperatures, have been tested for the hardness, H_μ in kg/mm^2 units, and electric resistivity, ρ in $10^6 \Omega$ per cm units. The results for the alloy with 4.8% Au (atomic)

Card 2/5

Decomposition of Solid Solutions in Nickel-Gold Alloys

75989
SOV/70-4-5-11/36

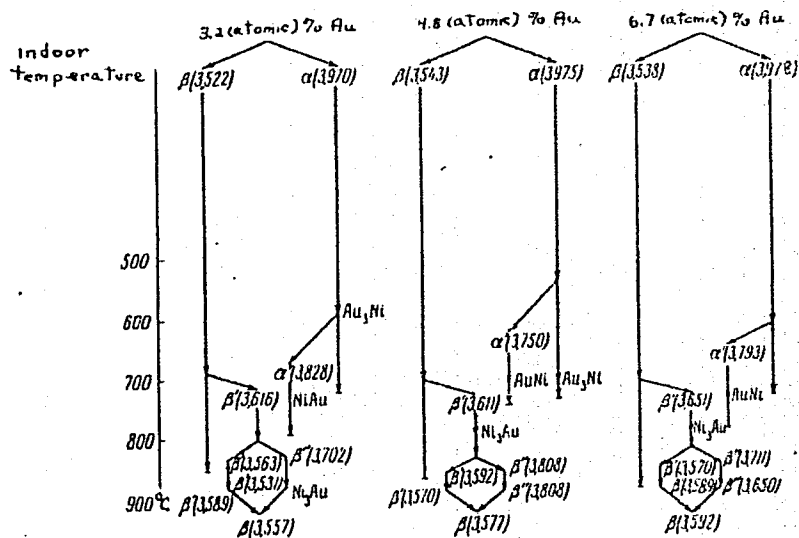


Fig. 10

Card 3/5

Decomposition of Solid Solutions in Nickel-Gold Alloys

75989
SOV/70-4-5-11/36

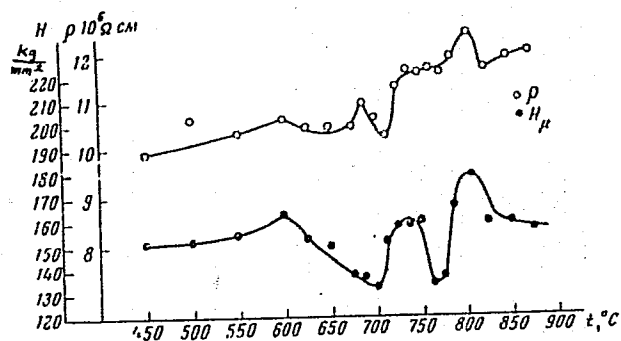


Fig. 6

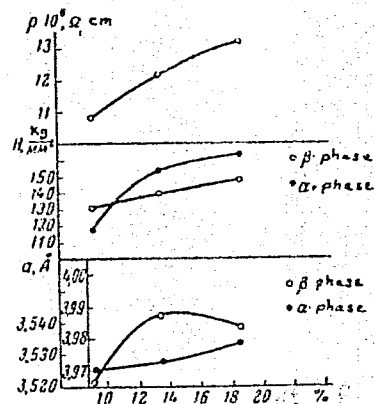


Fig. 1

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Decomposition of Solid Solutions in Nickel-
Gold Alloys

75989
SOV/70-4-5-11/36

are shown in Fig. 6. The changes in the identity periods, electric resistivities, and hardnesses with the change in the Au content are illustrated in Fig. 1. There are 10 figures; 5 tables; and 2 references, 1 Soviet, 1 British. The British reference is: M. Hansen, "Constitution of Binary Alloys," London, 1958.

ASSOCIATION: Georgian Polytechnic Institute imeni S. M. Kirov
(Gruzinskiy politekhnicheskiy institut imeni S. M. Kirova)

SUBMITTED: April 8, 1959

Card 5/5

SANADZE, V.V.; TSIVTSIVADZE, T.A.

Effect of small concentrations of cobalt on self-diffusion of iron.
Izv.vys.ucheb.zav.;fiz. no.2:206-209 '60. (MIRA 13:8)

1. Gruzinskiy politekhnicheskii institut im. S.M.Kirova.
(Iron) (Diffusion) (Cobalt)

82335

S/139/60/000/03/015/045

E073/E335
K.G.

18.7500

AUTHORS: Sanadze, V.V. and Tatrishvili, K.G.

TITLE: On the Influence of Small Additions of Tungsten¹ on the Self-diffusion of Iron^{1b}

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, Nr 3, pp 93 - 96 (USSR)

ABSTRACT: The authors investigated the influence of small concentrations of tungsten (0.1, 0.35, 0.6, 0.76 and 1.2 wt.%) on diffusion in vacuum (10^{-3} mm Hg) in the temperature range 900 - 1300 °C. As a tracer they used Fe⁵⁹. By means of the method of successive removal of layers, followed by measurements of the total radioactivity, the coefficients of self-diffusion of the iron, the activation energy of the self-diffusion and their dependence on concentration was measured. The full composition of the specimens used in the experiments is given in Table 1. The listed alloys were produced by smelting in a high-frequency vacuum furnace, casting into ingots which were forged into 5 x 5 x 25 mm rods; these rods were annealed at 1000 °C for a duration of 15 hours. It can be seen from the obtained results

Card1/2

82335

S/139/60/000/03/015/045

E073/E335

On the Influence of Small Additions of Tungsten on the Self-diffusion of Iron

that introduction of tungsten atoms into the iron crystal lattice brings about a reduction in the activation energy of self-diffusion up to about 0.4 wt.% tungsten. It can be concluded therefrom that in small quantities, tungsten atoms bring about a weakening of the bond forces in the lattice of the γ -iron. However, increase of the W concentration to about 0.6 wt.% leads to an increase of the activation energy of self-diffusion and consequently to a strengthening of the bond forces. Further additions of W up to about 1.2 wt.% have hardly any effect on the activation energy. The values of the activation energy of the self-diffusion and of the pre-exponential factors both for diffusion into the grain and for intercrystallite self-diffusion are entered in Table 2.

There are 5 figures, 2 tables and 8 references, 6 of which are Soviet and 2 English.

ASSOCIATION: Gruzinskiy politekhnicheskii institut imeni V.I.Lenina
(Georgian Polytechnical Institute imeni V.I. Lenin)

SUBMITTED: May 19, 1959

Card2/2

SANADZE, V.V.

Mechanism of the dissolution of phases in the Au - Pt system.
Dokl. AN SSSR 140 no.1:133-136 S.O '61. (MIRA 14:9)

1. Gruzinskiy politekhnicheskii institut im. V.I.Lenina. Pred-
stavleno akademikom N.V.Belovym.
(Gold) (Platinum) (Solution (Chemistry))

36383
S/139/62/000/001/006/032
EO21/E435

18.1220
AUTHORS: Sanadze, V.V., Kaverkin, I.P.

TITLE:

PERIODICAL: Recrystallization in copper-gallium solid solutions
no.1, 1962, 41-44

TEXT: Copper-gallium alloys containing 4.30, 8.13 and 11.33 atomic % gallium were prepared in a high frequency furnace using a graphite crucible. After homogenization, strip was rolled with a thickness 30 to 40 microns (99% deformation). Specimens were cut from the strip and heated from 15 sec to 10 min at 200 to 400°C followed by a water-quench. Oxide films formed at higher temperatures were removed by etching and X-ray photographs were taken. Microhardness measurements were also carried out. The beginning of recrystallization holding times were drawn. The beginning of recrystallization corresponded to a fall in microhardness. Holding for longer periods displaced the curves towards the lower temperature. The X-ray measurements confirmed the results. The difference between the temperatures of the beginning and end of

Card 1/3

Recrystallization in copper-gallium ... S/139/62/000/001/006/032
E021/E435

recrystallization increased with increase in concentration of gallium. Fig.3 shows the relation between the temperatures, °C, for beginning and end of recrystallization and the concentration of gallium (in atomic %) for a holding time of 2 minutes. A small concentration of gallium caused a considerable increase in the temperature of the beginning of recrystallization. For the samples containing 4.3, 8.13 and 11.33 atomic % gallium, the values for the energy of activation calculated from the curve of the beginning of recrystallization were 34, 28 and 30 kcal/mol and the values calculated from the curve for the end of recrystallization were 50, 34 and 47 kcal/mol, respectively. The energy of activation of nucleus-formation calculated from the number of interference spots on the X-ray photograph for the sample containing 4.3% gallium was 27 kcal/mol. Thus, at the beginning of recrystallization nearly all the energy is consumed by nucleus-formation. The energy of activation for growth of crystals was calculated by subtracting the activation energy for nucleus-formation from the activation energy at the end of recrystallization and was 23 kcal/mol. The obtained results are in agreement with Card 2/3

37710

S/159/62/000/002/002/028
E111/E135

121250

AUTHORS: Sanadze, V.V., and Gulyayev, G.V.

TITLE: Kinetics of recrystallization in nickel-gold alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Fizika, no.2, 1962, 15-20

TEXT: Previously the authors studied phase transformations occurring through mutual solution of phases in nickel-gold alloys. The study of their recrystallization properties is the subject of the present article. The four alloys studied contained 3.66, 5.5, 10.07 and 14.4% Au by weight. All were vacuum-melted, annealed and slowly cooled, and were found to be two-phase. Cold-rolled (deformation up to 96-98%) specimens 0.06 mm thick were annealed for various times and temperatures and were studied by X-ray diffraction and micro-hardness measurements in order to find the temperature of the start and end of recrystallization. Except for the longest holding time (60 min), the curves of the temperature of the start and end of recrystallization as functions of gold content had two maxima; at about 4 and at 10-12% Au.

Card 1/2

Kinetics of recrystallization ... S/139/62/000/002/002/028
E111/E135

The effect of diffusion, which reduces stresses in the deformed alloys, leads to an increase in the recrystallization temperature. A further important factor is the appearance of intermediate states which can affect the temperatures of the start or end of recrystallization for the shorter holding times. The activation energy of the start of recrystallization rises from about 37 kcal/g atom at about 4% Au to about 79 at 10, and about 80 at 15; the curve is similar to that of the temperature of the start of recrystallization for a holding time of 60 min. Evidently gold atoms, reducing the surface tension, increase lattice bonding forces when they penetrate its grains, thus raising both start and end temperatures of recrystallization. Professor V.I. Iveronova gave valuable advice on this work.

There are 8 figures and 1 table.

ASSOCIATION: Gruzinskiy politekhnicheskiy institut imeni
V.I. Lenina (Georgian Polytechnical Institute
imeni V.I. Lenin)

SUBMITTED: December 20, 1960

Card 2/2

37714
S/139/62/000/002/007/028
E073/E535

18.1220

AUTHORS:

Gegiadze, G.G. and Sanadze, V.V.

TITLE:

Influence of the manganese concentration on the recrystallization of copper-manganese alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.2, 1962, 40-43

TEXT: The dependence of the temperatures of beginning and end of recrystallization on the manganese concentration was studied for strongly deformed (up to 97%) copper-manganese alloy specimens with concentrations of 0.05, 2, 5.5, 8, 14, 21 and 26 wt.% Mn, produced from electrolytic copper and electrolytic manganese fused in a high temperature tungsten furnace in magnesite crucibles under helium. From the molten metal, ingots were teemed and forged and then homogenization annealed for 50 hours at 400°C. Following that, the crystal lattice and the microstructure of the alloys were studied. The effect of recrystallization was studied on foils rolled (with reductions up to 97.3%) to an average thickness of 0.05 mm, which were cut and isothermally annealed for 10 and 20 minutes in a Card 1/4 5

S/139/62/000/002/007/028
EO73/E535

Influence of the manganese

saltpetre bath and then quenched in water. Fig.1 shows the curves of the dependence of the temperature of beginning (t_H) and end (t_K) of recrystallization on the Mn concentration (wt.%) of the alloys quenched after holding for 10 minutes. For small additions of manganese the temperatures t_H and t_K increase. The t_H curve becomes horizontal from manganese concentrations of 5.7% onwards and dips slightly after exceeding a manganese concentration of 21 wt.%. The t_K curve rises up to 21 wt.% Mn then it drops appreciably. The dotted curve in Fig.1 represents the boundary of solubility, which passes through the zone where the t_H and t_K curves tend to decrease. However, this does not allow any definite conclusion to be made since there is no unified opinion on the behaviour or even the existence of this curve. Therefore, it is of interest to study the recrystallization in alloys with high manganese contents but this is difficult in view of the greater brittleness of these. The curves of the temperatures of the beginning and end of recrystallization as functions of the concentration obtained for Cu-Mn alloys differs from the corresponding curves published for the alloys Cu-Sn and

Card 2/8
3

45005

S/139/62/000/006/007/032
E021/E151

12000
AUTHORS:

Sanadze, V.V., Tsivtsivadze, T.A., and
Tatrishvili, K.G.

TITLE:

Influence of small concentrations of zirconium,
niobium and molybdenum on the self-diffusion of iron

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.6,
1962, 38-43

TEXT: Alloys were prepared in a high frequency furnace in a
vacuum of 10^{-3} mm Hg. The starting materials were Armco iron,
chemically pure niobium and zirconium and 99.5% pure molybdenum.
Additions of 0.09-1.2% zirconium, 0.09-1.15% niobium and 0.14-1.1%
molybdenum were used. The cast billets were forged and homogenised
at 1150 °C for 50 hours. Specimens 5 x 5 x 25 mm were prepared and
a 2 - 3 μ radioactive layer of Fe⁵⁹ was deposited on them.
Diffusion was produced at 900-1300 °C in vacuo. The coefficient of
self-diffusion was measured by removing thin layers from the
samples and measuring the residual radioactivity of the layer.
Graphs of log. activity (ΔI) against the thickness of the layer
removed (x) were drawn. For the alloy containing 0.53% niobium at

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Influence of small concentrations ... S/039/62/000/006/007/032
E021/E151

1000 °C there was a linear relationship between $\log. \Delta I$ and x which indicated that intercrystalline self-diffusion had a predominating influence. At 1250 °C there was a linear relation between $\log. \Delta I$ and x^2 which indicated predominance of trans-crystalline diffusion. Alloys with zirconium gave similar results. Alloys with molybdenum showed a linear relationship between $\log. \Delta I$ and x^2 at 900 °C as well as higher temperatures, indicating volume diffusion. The energy of activation Q and the exponential constant D_0 were determined from the temperature-coefficient of self-diffusion. In the case of Fe-Zr alloys, Q for volume self-diffusion increased from 69 to 76.5, and Q for intercrystalline diffusion from 31.8 to 34.1 kcal/g atom with increase in zirconium content from 0.09 to 1.19 wt.%. In Fe-Nb alloys, Q increased from 72.6 to 84.6 for volume diffusion and from 30.00 to 41.00 for intercrystalline diffusion with increase in niobium content from 0.09 to 1.15 wt.%. In Fe-Mo alloys, Q increased from 49.84 to 60.56 for volume diffusion, and from 37.04 to 40.29 for intercrystalline diffusion with increase in Mo content from 0.14 to 0.34 wt.%. With further increase to 1.10 wt.% Mo,

Card 2/3

Influence of small concentrations... S/139/62/000/006/007/032
E021/E151

Q decreased to 40.34 and 30.49 for volume and intercrystalline diffusion respectively.
There are 8 figures and 2 tables.

ASSOCIATION: Gruzinskiy politekhnicheskiy institut imeni V.I. Lenina
(Georgian Polytechnical Institute imeni V.I. Lenin)

SUBMITTED: May 27, 1961, and after revision,
March 8, 1962.

Card 3/3

SANADZE, V.V.; TSIIVTSIVADZE, T.A.

Effect of small concentrations of titanium on the self-diffusion
of iron. Fiz. met. i metalloved. 14 no.1:135-137 J1 '62.
(MIRA 15:7)

1. Gruzinskiy politekhnicheskiy institut.
(Iron-titanium alloys--Metallography)

SANADZE, V. V.; TSIVTSIVADZE, T. A.; TATRISHVILI, K. G.

Effect of weak concentrations of zirconium, niobium, and
molybdenum on the self-diffusion of iron. Izv. vys. ucheb.
zav.; fiz. no. 6:38-43 '62. (MIRA 16:1)

1. Gruzinskiy politekhnicheskii institut imeni Lenina.

(Iron-niobium-zirconium alloys)
(Iron-molybdenum alloys)
(Diffusion)

L 19396-63 EJP(q)/EWT(m)/EWP(B)/BDS
ACCESSION NR: AT3001930

AFFTC/ASD Pad HW/JD
S/2912/62/000/000/0314/0320

AUTHOR: Sanadze, V. V.

TITLE: On the mechanism of mutual phase dissolution in the Ni-Au system

SOURCE: Kristallizatsiya i fazovyye perekhody. Minsk, Izd-vo AN BSSR, 1962, 314-320

TOPIC TAGS: crystal, crystallization, crystallography, solution, solid, dissolution, phase, Au, Ni, enrichment, depletion, gold, nickel

ABSTRACT: The paper reports the results of an experimental investigation of alloys of the system Ni-Au. This work is an extension of earlier efforts by the author and G. V. Gulyayev (Kristallografiya, v. 4, no. 4, 1959, 526, and no. 5, 1959, 687), in which it was shown that such alloys, which at room temperature (RT) constitute a mixture of two phases, dissolve mutually at more elevated temperature (T) and, in that process, pass through the ordered states Au_3Ni , $AuNi$, and Ni_3Au . In the present course of experimentation the alloy was subjected to a series of quenchings from RT to $925^{\circ}C$ to investigate the entire course of the transformations that occur in the Ni-Au solid solutions (SS). The present test series differs from the earlier ones by its inclusion of large Au contents. This afforded a possibility

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L 19396-63

ACCESSION NR: AT3001930

of more precise measurement of the parameters of the crystalline lattices. The Ni-Au alloys of 0.7, 4.8, 6.7, and 8.4 atom-% were obtained by fusing sheet Au (99.99% pure) and electrolytic Ni in corundum crucibles in a high-T vacuum furnace. The ingots were forged at 700°C and then annealed in a vacuum (10^3 sicl mm Hg) for 24 hours at 900°C. Slow cooling to RT followed. Alloys with 0.7 atom-% Au. At RT, these alloys are two-phase. Along with a β solid solution of Au and Ni, a small quantity of Au-rich α phase appears in finely-dispersed form. With increasing T, the β phase remains predominant, but a redistribution of Au atoms leads to nonuniformities in the crystals of the α solid solutions and Au-depleted zones (α' phase) formed therein. At 450 to 500°C the α and α' phases separate completely; at 500°C an equalization of concentration occurs between α and α' phases, whereupon the α phase disappears near 600°C. Au enrichment of the β phase then creates Au-rich zones therein, leading to nonuniformities in the β -phase crystals above 600°C. At 675-680°C a Au-richer, β^* phase appears. At about 725°C a still more Au-rich β' phase appears and grows, while the intermediate β^* phase gradually disappears. Beginning at 725°C both the α' and the β' crystals approach the composition of an ordered phase Ni_3Au . Thus, in the process of mutual dissolution, the α solid solutions segregate Au-poor crystals, whereas the β solid solutions segregate Au-rich phases. Above 900°C a uniform SS forms. In essence the alloys with 4.8, 6.7, and 8.4% Au exhibit an analogous

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L 19396-63
ACCESSION NR: AT3001930

course of phase-dissolution processes with the only difference that the Au-richer alloys give more obvious evidence of ordering processes. Fig. 4 (see Encl.) reproduces the over-all scheme of the phase dissolution in Ni-Au alloys from RT to 925°C. The initial changes begin with a Au depletion of the Au-rich α -phase SS's. Intermediate α^* and α' phases arise. The qualitative ratios with the atoms in the elementary crystals appear to lead to an ordered state Au_3Ni and AuNi . At the higher T's, the β -phase Ni-based SS's divide into increasingly Au-enriched β' and β'' phases in which an ordered Ni_3Au phase also becomes evident. Orig. art. has 4 figs. and 1 table.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 16Apr63

ENCL: 01

SUB CODE: CH, PH, MA, EL

NO REF SOV: 002

OTHER: 006

Card 3/4

~~SAMADZE, V. V.~~

Dissertation defended for the degree of Doctor of Physicomathematical Sciences at the Institute of Crystallography in 1962:

"Investigation of Dissolution of Crystalline Phases in Binary Metallic Systems."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

L 10871-65 EWT(m)/EWP(t)/EWP(b) AFWL/ASD(a)-5/ASD(m)-3/AS(mp)-2/SSD/ESD(t)
JD/JW/JG

ACCESSION NR: AR4046554

S/0058/64/000/008/E088/E088

SOURCE: Ref. zh. Fizika, Abs. 8E680

AUTHORS: Sanadze, V. V.; Tatishvili, K. G.

8

TITLE: Effect of small platinum impurities on the self diffusion
of iron

CITED SOURCE: Tr. Gruz. politekhn. in-t., no. 8(93), 1963, 197-200

TOPIC TAGS: iron, selfdiffusion, tracer study, activation energy,
impurity effect, integral activity

TRANSLATION: The radioactive isotope Fe^{59} , deposited electrolytical-
ly on the surface of samples made of iron alloys with small addi-
tions of platinum, was used to study the self-diffusion of iron in
the interval 900--1300C. By the method of removal of layers with
subsequent measurement of the residual integral activity of the sam-

Card 1/2

L 10874-65

ACCESSION NR: AR4046554

2
ples, the authors determined the coefficient of self-diffusion of iron in the α and γ phases. The temperature dependences of the coefficients of volume self-diffusion of iron in the phase were calculated, and found to be:

$$\begin{aligned} D &= 1.66 \cdot 10^{-6} \exp(-69650/RT); \\ D &= 0.10 \cdot 10^{-6} \exp(-50790/RT); \\ D &= 3.53 \cdot 10^{-6} \exp(-61370/RT); \\ D &= 3.80 \cdot 10^{-6} \exp(-62390/RT); \\ D &= 4.18 \cdot 10^{-6} \exp(-62490/RT) \end{aligned}$$

for alloys with 0.16, 0.30, 0.43, 0.60, and 1.57 wt. % of platinum respectively. It is assumed that small platinum impurities, starting with 0.3 wt. %, should produce hardened blocks (short-range order) inside of which the mobility of the atoms is hindered, and this causes the decrease in the coefficient of self-diffusion and the increase in the activation energy. Ye. Smirnov. 16

SUB CODE: MM

ENCL: 00

Card 2/2

L 10875-65 EWT(m)/EWP(t)/EWP(b) Pad ESD(t)/SSD/AS(mp)-2/AFWL/ASD(a)-5/
ASD(m)-3 JD/JW/HW

ACCESSION NR: AR4046553

S/0058/64/000/008/E088/E088

SOURCE: Ref. zh. Fizika, Abs. 8E679

AUTHORS: Sanadze, V. V.; Tatrishvili, K. G.

TITLE: Effect of small nickel concentrations on the self diffusion
of iron

CITED SOURCE: Tr. Gruz. politekhn. in-t, no. 8(93), 1963, 201-205

TOPIC TAGS: iron, selfdiffusion, tracer study, activation energy,
impurity effect, integral activity

TRANSLATION: The radioactive isotope Fe^{59} was used to study the
self-diffusion (S) of iron alloyed with small concentrations of
nickel in the interval 900--1300C. The authors determined the co-
efficient of volume self-diffusion by the method of layer removal
with subsequent measurement of the residual integral activity of the

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L 10875-65

ACCESSION NR: AR4046553

3

samples. The Fisher method was used to determine the coefficients of the intercrystallite self-diffusion. The obtained values of the coefficient of self-diffusion were used to calculate the activation energy and the pre-exponential factors, listed in Table 1 of the enclosure. It is noted that the influence of nickel on the self-diffusion of iron is analogous to the influence of cobalt, where a sharp decrease in the activation energy of the self-diffusion of iron occurs at a concentration ~1 wt. % of the alloying element. Ye. Smirnov.

SUB CODE: MM

ENCL: 01

Card 2/3

L 10875-65

ACCESSION NR: AR4046553

ENCLOSURE: 01

0

Ni, % wt. con- tent	Volume self- diffusion		Inter-crystall. self-diff.	
	Q kcal/g.at	$D \cdot 10^4$ $\frac{\text{cm}^2}{\text{sec}}$	Q kcal/g.at	$D \cdot 10^4$ $\frac{\text{cm}^2}{\text{sec}}$
0.32	62.25	352.9	41.24	1.23
0.51	60.00	5.12	39.33	0.77
1.00	43.43	0.66	31.33	0.10
2.41	68.62	55.72	36.16	0.40
3.15	53.73	24.88	27.09	0.52

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L 10873-65 EWT(m)/EPF(n)-2/EWP(t)/EWP(b) Pu-4 AFWL/SSD JD/JW/JG

ACCESSION NR: AR4046555

S/0058/64/000/008/E088/E089

SOURCE: Ref. zh. Fizika, Abs. 8E681

AUTHORS: Sanadze, V. V.; Tsivtsivadze, T. A. B

TITLE: Effect of small tantalum concentrations on the self diffusion of iron 21

CITED SOURCE: Tr. Gruz. politekhn. in-t, no. 8(93), 1963, 207-211

TOPIC TAGS: iron, self diffusion,³ tracer study, integral activity, impurity effect, crystal lattice binding

TRANSLATION: The effect of small concentrations of Ta on the self-diffusion (S) of radioactive Fe⁵⁹ was investigated in the interval 950--1300C. The coefficients of S were determined by the method of removal of layers with subsequent measurement of the residual integral activity of the samples. The fissure method was used to dis-

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L 10873-65

ACCESSION NR: AR4046555

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tinguish between the processes of volume and intercrystallite S. The activation energies and the pre-exponential factors were found to be as listed in Table 1 of the enclosure. It is shown that small concentrations of Ta lead to an increase in the activation energy of γ -Fe, and consequently to an increase in the binding forces in the crystal lattice. The influence of small concentrations of Ta is compared with the influence of V, Ti, Zr, and Nb on C in Fe. Ye. Smirnov.

SUB CODE: MM

ENCL: 01

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L 10873-65

ACCESSION NR: AR4046555

ENCLOSURE: 01

Content of Ta, wt %	Volumetric selfdiffusion		Inter-crystalline selfdiffusion	
	D_0 , cm ² /sec	Q, kcal/gram-atom	$D_0 \cdot 10^5$, cm ² /sec	Q, kcal/gram-atom
0.13 0.33 0.6 0.94 1.21	0.21 0.53 6.41 15.5 22.5	67.3 69.5 72.3 74.2 76.0	8 10 23 49 67	81.2 82.8 83.8 85.3 86.0

Card 3/3

SANADZE, V.V.

Processes of the dissolution of crystalline phases in binary
metallic systems. Kristallografiia 8 no.6:865-872 N-D'63.
(MIRA 17:2)

1. Gruzinskiy politekhnicheskii institut imeni V.I. Lenina.

SANADZE, V.V.; GULYAYEV, G.V.

Phase dissolution in the system nickel-gold. Dokl. AN SSSR
158 no.1:89-91 S-O '64 (MIRA 17:8)

1. Gruzinskiy politekhnicheskiy institut imeni V.I. Lenina.
Predstavleno akademikom N.V. Belovym.

1. SANAGYAN, KH.
2. USSR (600)
4. Crassula
7. New method for propagating Crassula arborescens (In Armenian; summary in Russian). Biul.Bo.sada AN Arm.SSR no. 6, 1948
9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

MINASYAN, S.M.; SANAGYAN, M.B.

Materials on a study of sweet cherries and common cherries in the
environs of Erivan. Izy.AN Arm.SSR.Biol.i sel'khoz.nauki. 5 no.11:
79-86 '52. (MLRA 9:8)

1. Institut plodovodstva AN Arm. SSR.
(Erivan--Cherry)